UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.,	)	
Plaintiff,	)	C.A. No. 17-cv-275-LPS C.A. No. 17-cv-1353-LPS
v.	)	**JURY TRIAL DEMANDED**
OXFORD NANOPORE TECHNOLOGIES, INC., and OXFORD NANOPORE TECHNOLOGIES, LTD.,	)	**FILED UNDER SEAL**
Defendants.	)	

PLAINTIFF PACIFIC BIOSCIENCES OF CALIFORNIA, INC.'S OPENING BRIEF IN SUPPORT OF ITS MOTION FOR PARTIAL SUMMARY JUDGMENT AND TO STRIKE AND PRECLUDE TESTIMONY

Dated: November 22, 2019

Brian E. Farnan (Bar No. 4089)
Michael J. Farnan (Bar No. 5165)
FARNAN LLP
919 N. Market St., 12th Floor
Wilmington, DE 19801
(302) 777-0300
(302) 777-0301 (Fax)
bfarnan@farnanlaw.com
mfarnan@farnanlaw.com

Edward R. Reines (admitted *pro hac vice*)
Derek C. Walter (admitted *pro hac vice*)
Robert S. Magee (admitted *pro hac vice*)
WEIL, GOTSHAL & MANGES LLP
201 Redwood Shores Parkway
Redwood Shores, CA 94065
(650) 802-3000

Attorneys for Plaintiff

TABLE OF CONTENTS

Page

I. Summary of Argument 1

II. Nature and Stage of the Proceedings 1

III. Statement of Facts.....2

IV. Summary Judgment Arguments.....2

A. The ’400 And ’323 Patents Are Not Anticipated By Akeson Or Winters-Hilt 2

1. The Akeson And Winters-Hilt Grants Do Not Teach Measuring A Property While The Nucleic Acid Is Translocating The Nanopore.....3

2. Neither Akeson Nor Winters-Hilt Made A System That Measures A Signal During Nanopore Translocation To Determine A Sequence.....5

B. The ’400 And ’323 Patents Are Not Obvious.....6

C. The Claims Of The ’400 And ’323 Patents Are Patent Eligible Under § 101 8

D. ONT’s Priority Date Arguments For The ’056 And ’929 Patents Fail As A Matter Of Law.....12

1. The ’929 Patent Is Entitled To Its Original Priority Date.....15

2. The ’056 Patent Is Entitled To Its Original Priority Date.....16

E. ONT Fails To Provide A Reasonable Expectation Of Success For Any Of The Obviousness Grounds For The ’056 Patent 17

F. ONT Fails To Show That The Akeson References Anticipate The ’056 Patent.....18

V. PacBio’s Motion To Strike Should Be Granted.....21

A. Dr. Goldman’s Non-Infringement Testimony That Is Contrary To The Court’s Claim Constructions Should be Excluded 21

B. The Court Should Exclude Dr. Hrdlicka’s Testimony That Fails To Apply The Court’s Claim Constructions 22

C. Dr. Layne-Farrar's Testimony Regarding Comparable Licenses, [redacted] And Non-Infringing Alternatives Should Be Excluded 24

1. Dr. Layne-Farrar Fails To Perform An Analysis Of The Underlying Patents Of ONT Licenses.....24

2. Dr. Layne-Farrar Inappropriately [redacted] Without Performing Any Analysis 26

3. Dr. Layne-Farrar's Testimony Regarding Non-Infringing Alternatives Is Contrary To Law And Should Be Excluded.....27

D. Dr. Layne-Farrar's Second Supplemental Report Is Irrelevant And Should Be Struck.....28

E. Dr. Akeson's Testimony Based On Documents That Are Not Prior-Art, That Were Not Timely Disclosed, Contrary To Law, And Uncorroborated, Should Be Excluded.....29

1. Dr. Akeson's Testimony Based On Non-Prior Art References Will Confuse The Jury And Should Be Excluded 30

2. Dr. Akeson's Testimony Based On Documents Not Produced During Discovery Should Be Excluded.....31

3. Dr. Akeson's Opinions On Obviousness And Enablement Should Be Excluded.....34

4. Dr. Akeson's Narrative History Of His Work Is Uncorroborated Improper Expert Testimony And Should Be Excluded 34

VI. CONCLUSION.....35

TABLE OF AUTHORITIES

Page(s)

Federal Cases

Acceleration Bay LLC v. Activision Blizzard Inc.,
2019 WL 4194060 (D. Del. 2019) 27

Advanced Display Sys., Inc. v. Kent State Univ.,
212 F.3d 1272 (Fed. Cir. 2000) 14

Alice Corp. Pty. v. CLS Bank Int'l,
573 U.S. 208 (2014) 9

Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.,
876 F.3d 1350 (Fed. Cir. 2017) 7

Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC,
827 F.3d 1350 (Fed. Cir. 2016) 10

Berkheimer v. HP Inc.,
881 F.3d 1360 (Fed. Cir. 2018) 10, 12

Biscotti Inc. v. Microsoft Corp.,
2017 WL 2607882 (E.D. Tex. 2017) 25

Blair v. Scott Specialty Gases,
283 F.3d 595 (3d Cir. 2002) 7

Bourjaily v. U.S.,
483 U.S. 171 (1987) 21

Commonwealth Scientific and Indus. Research Organisation v. Buffalo Technology (USA), Inc.,
542 F.3d 1363 (Fed. Cir. 2008) 14

Cryovac Inc. v. Pechiney Plastic Packaging, Inc.,
430 F.Supp.2d 346 (D. Del. 2006) 9

Daubert v. Merrell Dow Pharm., Inc.,
509 U.S. 579 (1993) 21

EMC Corp. v. Pure Storage, Inc.,
154 F. Supp. 3d 81 (D. Del. 2016) 9, 23

Endo Pharm. Inc. v. Teva Pharm. USA, Inc.,
919 F.3d 1347 (Fed. Cir. 2019) 10

Enfish, LLC v. Microsoft Corp.,
822 F.3d 1327 (Fed. Cir. 2016) 11

Finjan, Inc. v. Blue Coat Sys., Inc.,
879 F.3d 1299 (Fed. Cir. 2018) 11

Georgia-Pac. Corp. v. U.S. Plywood Corp.,
318 F.Supp 1116 (S.D.N.Y. 1970) 24

Grain Processing Corp. v. American Maize-Prods. Co.,
185 F.3d 1341 (Fed. Cir. 1999) 27

Harari v. Hollmer,
602 F.3d 1348, 1352 (Fed. Cir. 2010) 14

Harari v. Lee,
656 F.3d 1331 (Fed. Cir. 2011) 14

In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.,
676 F.3d 1063 (Fed. Cir. 2012) 8

In re Oelrich,
666 F.2d 578 (CCPA 1981) 19

In re Paoli R.R. Yard PCB Litig.,
35 F.3d 717 (3d Cir. 1994) 21

Innogenetics N.V. v. Abbott Labs.,
512 F.3d 1363 (Fed. Cir. 2008) 32

Intellectual Ventures I LLC v. Symantec Corp.,
838 F.3d 1307 (Fed. Cir. 2016) 10

Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.,
821 F.3d 1359 (Fed. Cir. 2016) 7, 17

Intendis GMBH v. Glenmark Pharm. Inc.,
USA, 822 F.3d 1355 (Fed. Cir. 2016) 8

Intendis GMBH v. Glenmark Pharm. Ltd.,
117 F. Supp. 3d 549 (D. Del. 2015) 8, 18

Internet Patents Corp. v. Active Network, Inc.,
790 F.3d 1343 (Fed. Cir. 2015) 9

Island Intellectual Prop. LLC v. Deutsche Bank AG,
2012 WL 526722 (S.D.N.Y. 2012) 35

King Pharm., Inc. v. Eon Labs, Inc.,
616 F.3d 1267 (Fed. Cir. 2010) 3

LaserDynamics, Inc. v. Quanta Computer, Inc.,
694 F.3d 51 (Fed. Cir. 2012) 24

Lucent Technologies, Inc., et al. v. Gateway, Inc., et al.,
580 F.3d 1301 (Fed. Cir. 2009) 24

Mayo Collaborative Servs. v. Prometheus Labs., Inc.,
566 U.S. 66 (2012) 9, 10

MEHL/Biophile Int'l Corp. v. Milgraum,
192 F.3d 1362 (Fed. Cir. 1999) 19, 20

Meyers v. Pennypack Woods Home Ownership Assn.,
559 F.2d 894 (3d Cir. 1977) 33

Micro Chem., Inc. v. Lextron, Inc.,
318 F.3d 1119 (Fed. Cir. 2003) 27, 28

Network-1 Technologies, Inc. v. Alcatel-Lucent USA, Inc.,
2017 WL 4173467 (E.D. Tex. 2017) 27

Oxford Gene Tech. Ltd. v. Mergen Ltd.,
345 F. Supp. 2d 431 (D. Del. 2004) 22

Paice LLC v. Ford Motor Co.,
881 F.3d 894 (Fed. Cir. 2018) 14, 15, 16

PAR Pharm., Inc. v. TWI Pharm., Inc.,
773 F.3d 1186 (Fed. Cir. 2014) 19, 20

Pfizer, Inc. v. Apotex, Inc.,
480 F.3d 1348 (Fed. Cir. 2007) 7

Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.,
711 F.3d 1348 (Fed. Cir. 2013) 27

Tyco Healthcare Grp. LP v. Ethicon Endo-Surgery, Inc.,
774 F.3d 968 (Fed. Cir. 2014) 3

Utah Med. Prod., Inc. v. Graphic Controls Corp.,
350 F.3d 1376 (Fed. Cir. 2003) 24

Woodland Tr. v. Flowertree Nursery, Inc.,
148 F.3d 1368 (Fed. Cir. 1998) 35

Zimmer Surgical, Inc. v. Stryker Corporation,
365 F. Supp. 3d 466 (D. Del. 2019) 24

Statutes and Regulations

35 U.S.C. § 101 ..... 8, 9

35 U.S.C. § 102(b) 2

35 U.S.C. § 102(g) 2, 3

35 U.S.C. § 282 32

37 C.F.R. § 1.57(c) 14

Fed. R. Civ. P. 26 ..... 31, 32

Fed. R. Civ. P. 26(a) 31

Fed. R. Civ. P. 37(c)(1) 31

Fed. R. Evid. 702 ..... 21, 22

I. SUMMARY OF ARGUMENT

Defendants Oxford Nanopore Technologies, Inc. and Oxford Nanopore Technologies, Ltd. (collectively, "ONT") continue to clutter this complex case with a glut of positions that are inconsistent with undisputed facts, the Court's claim construction order, and—in several instances—the unambiguous admissions of ONT's own experts. The Court should prevent these groundless arguments from reaching the jury and should grant Plaintiff Pacific Biosciences of California, Inc.'s ("PacBio") motion to streamline this case for trial.

II. NATURE AND STAGE OF THE PROCEEDINGS

This is a patent infringement case involving foundational technology in the field of nanopore sequencing. PacBio's patents cover groundbreaking inventions that allow for fast and accurate sequencing of polynucleotides using nanopore technology. ONT has employed this technology to compete with PacBio in the long-read single-molecule sequencing market. Indeed, every sequencing product that ONT sells relies heavily upon PacBio's patented technology.

To stop this ongoing and expanding infringement, PacBio filed suit against ONT on March 15, 2017, asserting U.S. Pat. No. 9,546,400 ("the '400 patent"). D.I. 1 (C.A. No. 17-275-LPS-CJB). PacBio filed a separate civil action asserting U.S. Patent Nos. 9,678,056 ("the '056 patent") and 9,738,929 ("the '929 patent") on September 25, 2017 (D.I. 1 (C.A. No. 17-1353-LPS-CJB), and later added U.S. Patent No. 9,772,323 ("the '323 patent," collectively with the '400, '056, and '929 patents, the "Asserted Patents") to that case. D.I. 52 (C.A. No. 17-1353-LPS-CJB).

In the two-and-a-half years that have elapsed since PacBio initiated this suit, ONT has repeatedly attempted to invalidate the Asserted Patents—and failed each time. For example, ONT filed multiple motions to dismiss asserting that some of the Asserted Patents are directed to unpatentable subject matter. The Court denied each one. *See* D.I. 23 (C.A. No. 17-cv-275); D.I. 48 (C.A. No. 17-1353). ONT also filed petitions for *inter partes* review asserting that the '400,

'056, and '929 patents are invalid over the prior art; each one was either denied by the Patent Trial and Appeal Board or withdrawn by ONT. *See, e.g.*, Ex. 1 [IPR2018-00789, Paper 8]; Ex. 2 [IPR2018-01785, Paper 8]; Ex. 3 [IPR2018-01792, Paper 10]; Ex. 4 [IPR2018-01795, Paper 8].

III. STATEMENT OF FACTS

The facts pertinent to each requested ground for summary judgment and exclusion are set forth in the arguments below.

IV. SUMMARY JUDGMENT ARGUMENTS

A. The '400 And '323 Patents Are Not Anticipated By Akeson Or Winters-Hilt

ONT and its expert, Dr. Goldman, assert that the '400/'323 patents are invalid as anticipated by the work of Drs. Akeson and Winters-Hilt prior to 2009. ONT offers two theories of anticipation, neither of which pass muster. First, ONT argues that the '400/'323 patents are anticipated under 35 U.S.C. § 102(b)[1] by grant proposals submitted by Drs. Akeson and Winters-Hilt (the "Akeson Grant" and "Winters-Hilt Grant," respectively). Second, ONT argues that the '400/'323 patents are anticipated under 35 U.S.C. § 102(g) by the laboratory work of Drs. Akeson and Winters-Hilt. To support its 102(g) argument, ONT and Dr. Goldman rely on the same Akeson and Winters-Hilt Grants as well as testimony from Dr. Akeson. As Dr. Goldman admits, however, the grant proposals do not teach every limitation of the '400/'323 patents. Moreover, Drs. Akeson and Goldman admit that neither Drs. Akeson nor Winters-Hilt made the claimed inventions.

The substantial overlap between the work of Drs. Akeson and Winters-Hilt—and their commensurate failure to teach or create the claimed inventions—is not surprising. Dr. Winters-Hilt was Dr. Akeson's student. Ex. 10 [Akeson Dep. Tr.] at 306:13–20. Dr. Akeson states that he

[1] References to the provisions of 35 U.S.C. refer to the 2011, pre-America Invents Act version of the statute.

worked with Dr. Winters-Hilt in connection with the Winters-Hilt's grant proposal. Ex. 9 [Akeson Opening Report] ¶ 56. The experiments on the "duplex nanopore DNA sequencing approach" employed by Drs. Akeson and Winters-Hilt were performed in both Dr. Akeson's Lab and Dr. Winters-Hilt's lab. Ex. 10 [Akeson Dep. Tr.] at 324:5–18, 328:7–9.

"A claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference." *King Pharm., Inc. v. Eon Labs, Inc*., 616 F.3d 1267, 1274 (Fed. Cir. 2010). Alternatively, a patent may be invalid as anticipated if "the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it." 35 U.S.C. § 102(g). Anticipation under 102(g) requires either reduction of the invention to practice prior to the priority date of the patent, or conception prior to the priority date followed by diligence in reduction to practice. *See Tyco Healthcare Grp. LP v. Ethicon Endo-Surgery, Inc.*, 774 F.3d 968, 974–75 (Fed. Cir. 2014).

The '400/'323 patents require, among other things, "measuring a property…while the template nucleic acid is ***translocating*** through the nanopore" and using that measurement to determine the nucleotide sequence by comparing the measurement to calibration information for all the 4^N combinations. *See, e.g*., '400 patent at cl. 1. ONT's anticipation theories fail because the Akeson and Winters-Hilt Grants do not disclose this requirement, and because the work of Drs. Akeson and Winters-Hilt measured a property while the template nucleic acid was stationary, blocking the nanopore, not translocating through it.

1. The Akeson And Winters-Hilt Grants Do Not Teach Measuring A Property While The Nucleic Acid Is Translocating The Nanopore

The Akeson and Winters-Hilt Grants both teach methods of detecting nucleotides in a nanopore that do not involve "measuring a property…while the template nucleic acid is translocating through the nanopore." Instead, they teach suspending a double-stranded DNA

hairpin above a nanopore, and making measurements while the terminal ends of the hairpin—both strands of the duplex—are suspended in the vestibule of the nanopore. *See, e.g.*, Ex. 5 [Akeson Grant] at ONT-EXP-002394; Ex. 6 [Winters-Hilt Grant] at ONT-EXP-002345 ("dsDNA is too large to translocate" but "about ten base-pairs at one end can still be drawn into the large *cis*-side vestibule"); *id.* at ONT-EXP-002365; Ex. 7 [Dessimoz Rebuttal Report] ¶¶ 109, 165–166, 185. In the method disclosed in the Akeson and Winters-Hilt Grants, the signal measurement is performed while the nanopore is blocked by this structure, not while the nucleic acid is translocating through the nanopore.

ONT's expert, Dr. Goldman, admits that the Akeson and Winters-Hilt Grants do not disclose all requirements of the '400/'323 patents and thus do not anticipate the '400/'323 patents. At deposition, Dr. Goldman admitted that the Akeson Grant does not teach translocation of DNA through the nanopore. *See* Ex. 8 [Goldman Dep. Tr.][2] at 159:12-160:4 [redacted]. Dr. Goldman further admitted that neither the Akeson Grant nor the Winters-Hilt Grant disclosed "determining the sequence of a template nucleic acid":

[redacted]

[2] All objections omitted herein.

[redacted]

Ex. 8 [Goldman Dep. Tr.] at 292:21–293:16. Lastly, Dr. Goldman flatly admits that neither the Akeson Grant nor Winters-Hilt Grant anticipates the '400/'323 patents:

[redacted]

Ex. 8 [Goldman Dep. Tr.] at 234:23–235:15; *see also id.* at 236:6–12 [redacted]).

Because ONT does not have clear and convincing evidence of anticipation for the '400/'323 patents, its anticipation theories should be removed from the case.

2. Neither Akeson Nor Winters-Hilt Made A System That Measures A Signal During Nanopore Translocation To Determine A Sequence

ONT also asserts that the '400/'323 claims are invalid under § 102(g) because Drs. Akeson and Winters-Hilt invented the subject matter prior to 2009. ONT's only support for these claims is the Akeson and Winters-Hilt Grants, and the testimony of Dr. Akeson. As discussed above, the grant proposals do not describe measuring a signal while a nucleic acid is translocating the nanopore, and so any support for that claim element must come from the testimony of Dr. Akeson. Dr. Akeson, however, testified that neither he nor Dr. Winters-Hilt invented nanopore sequencing by measuring a signal while a nucleotide translocates through a nanopore, much less made such invention prior to the 2009 priority date of the patents.

Dr. Akeson's testimony is clear that he never invented the nanopore sequencing methods of the '400/'323 patents. In his Opening Report, Dr. Akeson stated that "[t]o my knowledge, and in my opinion, no one in the art had publicly disclosed the successful use of nanopore systems in practice to correctly read the nucleotide sequence of a polynucleotide strand prior to the 2010 time period." Ex. 9 [Akeson Opening Report] ¶ 42. Consistent with his expert report, Dr. Akeson testified that, [redacted] Ex. 10 [Akeson Dep. Tr.] at 315:14–19. Dr. Akeson testified that, he was ultimately unsuccessful and abandoned his efforts in 2007 or 2008. Ex. 10 [Akeson Dep. Tr.] at 322:21–324:9 [redacted]

Moreover, Dr. Akeson confirmed that he did not know of anyone who had successfully used N-mers in nanopore sequencing before the '400/'323 patents. Ex. 10 [Akeson Dep. Tr.] at 305:6–25 [redacted] Dr. Akeson confirmed that this failure to invent N-mer based sequencing included Dr. Winters-Hilt. Ex. 10 [Akeson Dep. Tr.] 307:16-20 [redacted]

ONT has failed to provide clear and convincing evidence of prior invention, and so its 102(g) anticipation claims should be eliminated from the case.

B. The '400 And '323 Patents Are Not Obvious

ONT also claims that the '400/'323 patents are obvious in light of 33 combinations of prior art. Notably, however, ONT's expert, Dr. Goldman, admitted that he did not believe that a POSA would have a reasonable expectation of success in achieving any of his proposed combinations.

To render a claim obvious, "the burden falls on the challenger of the patent to show by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so." *Pfizer, Inc. v. Apotex, Inc*., 480 F.3d 1348, 1361 (Fed. Cir. 2007) (internal quotations omitted). The Federal Circuit has "held that where a party argues a skilled artisan would have been motivated to combine references, it must show the artisan would have had a reasonable expectation of success from doing so." *Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (internal citation and quotations omitted). Reasonable expectation of success and motivation to combine are "two different legal concepts." *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd*., 821 F.3d 1359, 1367 (Fed. Cir. 2016).

ONT fails to provide evidence that a POSA would have a reasonable expectation of success for any of its 33 prior art combinations. Dr. Goldman's sole mention of a reasonable expectation of success is a repetition of the conclusion that "[a]s shown by the chart and discussion below, a POSITA would have had a reason to combine the [references] to arrive at the claimed invention with a reasonable expectation of success." *See, e.g.* Ex. 11 [Goldman Opening Report] ¶ 144. Notably, he offers the same conclusory statement for every obviousness combination for the dependent claims and offers no statement with respect to the independent claims. *See, e.g.*, Ex. 11 [Goldman Opening Report] ¶¶ 290, 347, 433, 449, 506, 555, 611, 661, 718, 831, 871, 903, 923, 974, 1007, 1022, 1054, 1068, 1117, 1164, 1212, 1260, 1309, 1355, 1404.

Dr. Goldman's opinion, which is "conclusory" and "lacking in specific facts," is "inadequate to satisfy" ONT's burden on summary judgment. *Blair v. Scott Specialty Gases*, 283 F.3d 595, 608 (3d Cir. 2002); *see also Intendis GMBH v. Glenmark Pharm. Ltd.*, 117 F. Supp. 3d

549, 591 (D. Del. 2015), aff'd sub nom. *Intendis GMBH v. Glenmark Pharm. Inc.*, USA, 822 F.3d 1355 (Fed. Cir. 2016) ("The court was not presented with testimony or other evidence regarding the expectation of success in swapping ingredients in the specific combination(s)-at-issue and, therefore, cannot conclude that defendants have carried their burden in this regard"); *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068-69 (Fed. Cir. 2012) ("[A] party seeking to invalidate a patent as obvious must demonstrate by clear and convincing evidence that a skilled artisan…would have had a reasonable expectation of success." (citation omitted)).

When cross-examined, Dr. Goldman admitted that, contrary to the statement in his report, he did not "formally use that criteria" of reasonable expectation of success when forming his obviousness opinion. *See* Ex. 8 [Goldman Dep. Tr.] at 188:3–14. On the merits, Dr. Goldman confirmed that a POSA would ***not*** have had a reasonable expectation of success in combining ONT's prior art:

Ex. 8 [Goldman Dep. Tr.] at 242:25–243:10.

ONT's obviousness claims are unsupported by any evidence of a reasonable expectation of success, and Dr. Goldman testified that a POSA would not have a reasonable expectation of success in combining the prior art. ONT's obviousness grounds fail and should be removed from the case.

C. The Claims Of The '400 And '323 Patents Are Patent Eligible Under § 101

ONT's expert, Dr. Goldman, asserts that the claims of both the '400 and '323 patents are unpatentable as purportedly directed to the abstract idea of "identifying an unknown DNA

sequence by comparing measurements made for that unknown sequence against measurements obtained previously for known DNA sequences." Ex. 11 [Goldman Opening Report] ¶¶ 798, 1475. In support, Dr. Goldman merely incorporates by reference ONT's unsuccessful legal briefs supporting its Section 101-based motion to dismiss. *Id.*; *see also* D.I. 23. Dr. Goldman fails to "explain how and why" he "reached the conclusion being proffered" and so his opinions carry no weight. *EMC Corp. v. Pure Storage, Inc.*, 154 F. Supp. 3d 81, 92 (D. Del. 2016), citing *Cryovac Inc. v. Pechiney Plastic Packaging, Inc.*, 430 F.Supp.2d 346, 362 (D. Del. 2006).

Even crediting this dubious—and half-hearted—approach to an expert report, summary judgment is warranted. The discovery that has occurred since denial of ONT's motion establishes that ONT's arguments are equally untenable at the summary judgment stage.

Under § 101 "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" is eligible to be patented. The Supreme Court has interpreted this language to exclude "[l]aws of nature, natural phenomena, and abstract ideas." *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). In *Alice*, the Supreme Court confirmed that a two-step framework, first set forth in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012), applies to determinations of patent subject matter eligibility under 35 U.S.C. § 101. *See Alice*, 573 U.S. at 217.

At *Alice* step one, a court must determine whether the claimed invention is "directed to" ineligible subject matter. *Alice*, 573 U.S. at 218. This step requires a court to consider the claims "***in their entirety*** to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015) (emphasis added). In making this determination, "[t]he Supreme Court has cautioned that 'too broad an interpretation of" ineligible subject matter 'could eviscerate patent law' because 'all

inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.'" *Endo Pharm. Inc. v. Teva Pharm. USA, Inc.*, 919 F.3d 1347, 1352–53 (Fed. Cir. 2019) (quoting *Mayo*, 566 U.S. at 71).

At *Alice* step two, a court must "examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 134 S. Ct. at 2357. "Step two is 'a search for an inventive concept—*i.e.*, an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.'" *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1313 (Fed. Cir. 2016). "The 'inventive concept' may arise in one or more of the individual claim limitations or in the ordered combination of the limitations" and establishing an absence of an inventive concept "requires more than recognizing that each claim element, by itself, was known in the art." *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349–50 (Fed. Cir. 2016). "Any fact, such as this one, that is pertinent to the invalidity conclusion ***must be proven by clear and convincing evidence***." *Berkheimer v. HP Inc*., 881 F.3d 1360, 1368 (Fed. Cir. 2018) (emphasis added).

Here, Dr. Goldman's adoption of ONT's losing motion is not a credible argument that the claims of the '400 and '323 Patents are directed to an abstract idea. Indeed, the plain language of the claims belies such a characterization. For example, the claims of the '400 patent are directed to determining the sequence of a nucleic acid (such as DNA), and include at least the following concrete elements:

- "a substrate comprising a nanopore in contact with a solution"
- a "solution comprising a template nucleic acid above the nanopore"
- "a voltage across the nanopore"
- measurement of a "property which has a value that varies for N monomeric units of the template nucleic acid in the pore, wherein the

measuring is performed as a function of time, while the template nucleic acid is translocating through the nanopore"

- N must be "three or greater"
- Determining the sequence by a process "including comparing the measured property…to calibration information produced by measuring such property for 4 to the N sequence combinations"

The claims of the '323 Patent are similarly limited, and further include the requirement that "the translocation rate through the nanopore is enzymatically controlled."

There is nothing abstract about these claim requirements. Instead, they constitute specific, concrete steps in a method that represents a significant improvement over existing nanopore sequencing methods. As Dr. Dessimoz opines, whereas prior art attempts to use nanopores for nucleic acid sequencing focused on detecting the signal attributable to a single nucleotide to achieve single-base resolution, the methods claimed in the '400 and '323 Patents represent a wholly different approach that looks more broadly at the signal contributions of the 4^N nucleotides that contribute to the signal. *See* Ex. 12 [Dessimoz Opening Report] ¶¶ 23–67, 81–113. Such claims are patentable. *See, e.g., Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016) (The "first step in the *Alice* inquiry…asks whether the focus of the claims is on the specific asserted improvement in computer capabilities…or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool."). Dr. Goldman's comparison of these sophisticated method steps to the comparisons that high school students might engage in, *see* Ex. 11 [Goldman Opening Report] ¶ 798 and C.A. No. 17-275-LPS, D.I. 10 at 1, grossly oversimplifies the claims and ignores the nature of the claimed advance over the prior art—a necessary part of the Step One analysis. *See Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018) ("Starting at step one, we must first examine the '844 patent's 'claimed advance' to determine whether the claims are directed to an abstract idea.") (citation omitted); *see also* Ex. 7 [Dessimoz Rebuttal Report] ¶¶ 206–207. Here, although to be sure the claims *involve*

comparison of specific types of data, they are plainly not *directed to* the abstract idea of comparing data. Accordingly, ONT's unpatentability argument fails at Step One and PacBio is entitled to summary judgment on that basis.

To the extent the Court determines that a Step Two analysis is necessary, Dr. Goldman's uncorroborated assertions that the '400 and '323 Patents "contain no additional inventive concept that can transform the abstract idea into patentable subject matter" is plainly insufficient to meet ONT's burden of proving invalidity. Ex. 11 [Goldman Opening Report] ¶¶ 800, 1477. These conclusory assertions are not only insufficient standing alone, they are contradicted by Dr. Goldman's own testimony stating that the innovations claimed in the '400 and '323 Patents were anything but well-known and conventional in 2009. *See* Ex. 8 [Goldman Dep. Tr.] at 392:3–10 (nanopore sequencing was an "emerging technology" in 2009); 394:10-19 (enzymatic control of translocation of a nucleic through a nanopore "was not routine in 2009"); 395:19–396:7 (step (c) and 1 (c) of the '400 and '323 Patents, respectively, are inventive because [redacted] Accordingly, since "[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact" that must be proven by clear and convincing evidence, *Berkheimer*, 881 F.3d at 1368, ONT cannot meet its burden as a matter of law.

D. ONT's Priority Date Arguments For The '056 And '929 Patents Fail As A Matter Of Law

ONT claims that the '056 and '929 patents are entitled to priority dates in 2016 instead of 2009. *See* Ex. 13 [2019-07-03 Oxford's Supp. Final Invalidity Cont.] at 49–50; Ex. 14 [Hrdlicka Opening Report] ¶¶ 288–292; Ex. 15 [Ha Opening Report] ¶ 106. This is despite the consensus among the experts that all of the asserted patents have a priority date of no later than 2009. *See*,

e.g., Ex. 10 [Akeson Dep. Tr.] at 334:10–17 [redacted] Ex. 22 [Ha Dep. Tr.] at 215:21–25 ("Q. And did you -- for your opinions in this case, did you assume that the proper priority date was 2009? A. Yeah, I think. I think so; at least for most of them, yeah, if not all."); Ex. 19 [Hrdlicka Dep. Tr.] at 280:13–17 [redacted]. This understanding is reflected in the expert reports of Drs. Hrdlicka and Ha. Dr. Hrdlicka's opinions on validity apply the understanding of a POSA based on a 2009 priority date for the '929 patent. Ex. 28 [Hrdlicka Opening Report] ¶¶ 92–111. Similarly, Dr. Ha's opinions regarding validity are expressly predicated on the 2009 priority date for the '056 patent. Ex. 15 [Ha Opening Report] ¶ 86. In other words, notwithstanding ONT's cursory challenge to the priority dates, ONT's experts agree with a 2009 priority date.

PacBio filed preliminary amendments explicitly including material from patent applications that had been properly incorporated by reference throughout the patents in the priority chain and that are effective to establish priority. Notably, ONT does not argue that the underlying provisional and parent applications fail to provide § 112 support, but instead argue that the preliminary amendments—which merely include material that was already incorporated by reference—deprive the '929 and '056 Patents of the consensus priority dates. *See* Ex. 13 [2019-07-03 Oxford's Supp. Final Invalidity Cont.] at 49–50; Ex. 14 [Hrdlicka Opening Report] ¶¶ 288–292; Ex. 15 [Ha Opening Report] ¶ 106. This is incorrect. A preliminary amendment that "contains only content directly cut and pasted from" a patent application incorporated by reference

"does not contain any new matter compared to the initial parent application." *Harari v. Hollmer*, 602 F.3d 1348, 1352 (Fed. Cir. 2010).

There are clear requirements for incorporation by reference: "1) Express a clear intent to incorporate by reference by using the root words 'incorporat(e)' and 'reference' (e.g. 'incorporate by reference'); and 2) Clearly identify the referenced patent, application, or publication." 37 C.F.R. § 1.57(c). "Incorporation by reference provides 'a method for integrating material from various documents into a host document[ ] ... by citing such material in a manner that makes clear that the material is effectively part of the host document as if it were explicitly contained therein.'" *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 906-7 (Fed. Cir. 2018) (citing *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)). Identifying a reference "without qualification… is plainly sufficient to incorporate [the reference] in its entirety." *Id. at 907*; *see also Harari v. Lee*, 656 F.3d 1331, 1335-38 (Fed. Cir. 2011) (holding that the language "[t]he disclosures of the two applications are hereby incorporate[d] by reference" is sufficient to incorporate the references "in [their] entirety"). The relevant portions of the '056 and '929 patents unquestionably satisfy this requirement.

Moreover, "in the context of a validity challenge based on new matter, the fact that the United States Patent and Trademark Office ('PTO') has allowed an amendment without objection 'is entitled to an especially weighty presumption of correctness' in a subsequent validity challenge based on the alleged introduction of new matter." *Commonwealth Scientific and Indus. Research Organisation v. Buffalo Technology (USA), Inc.*, 542 F.3d 1363, 1380 (Fed. Cir. 2008). Here, ONT has failed to come forward with any evidence that the preliminary amendments introduce new matter—which would be necessary to change the priority date—much less evidence sufficient to overcome the presumption in favor of the correctness.

1. The '929 Patent Is Entitled To Its Original Priority Date

The application for the '929 Patent was filed on December 19, 2016. This application incorporated by reference and claimed priority to U.S. Patent Application No. 61/099,696 in its entirety for all purposes. '929 Patent at 1:13–19. The '696 application was also incorporated by reference in the parent applications to which the '929 Patent claims priority, using the same language. *See* Ex. 36 [U.S. Pat. No. 8,143,030] at 1:8–11. Thus, all of the material of the '696 application was properly incorporated into all of the applications in the priority chain for the '929 patent. *Paice*, 881 F.3d at 907.

On cross-examination, ONT's expert, Dr. Hrdlicka, conceded that a person of ordinary skill in the art would understand that the language used in the '929 Patent to incorporate the '696 application incorporated all of the material of the '696 application into the specification as though it was set forth therein:

Ex 19 [Hrdlicka Dep. Tr.] at 292:12-25. Dr. Hrdlicka's testimony here is consistent with his testimony discussed above that the consensus understanding of the proper priority date is supported by the file history. Ex. 19 [Hrdlicka Dep. Tr.] at 280:13-17.

On December 20, 2016, PacBio amended the specification of the '929 Patent to include approximately five paragraphs from the '696 application, which was already incorporated by reference. Ex. 18 [PCB-DE-0001833-1840]. This amendment is the sole basis for ONT's assertion that PacBio be afforded a later priority date. Again, this preliminary amendment, which

merely includes material from the '696 application, "does not contain any new matter compared to the initial parent application." *Harari*, 602 F.3d at 1352.

ONT relies on the December 20, 2016 priority date for its anticipation grounds based on McKeown and Brown. *See* Exs. 20 [McKeown] and 21 [Brown]. Both McKeown and Brown were published after 2009, and so are not prior art unless the priority date of the '929 Patent is changed to 2016. Because that is the incorrect priority date, those grounds fail.

2. The '056 Patent Is Entitled To Its Original Priority Date

The application that issued as the '056 Patent was filed on December 1, 2016. The '056 Patent is a continuation of application No. 14/026,906, filed on September 13, 2013, which itself is a continuation of application No. 12/757,789. The provisional application to the '789 application, application No. 61/168,431, was filed on April 10, 2009. The '431 provisional application, and the '906 and '789 applications all include a statement that "[t]he kinetics of the enzymes can be altered by mutation or conditions to maximize the likelihood of sequence detection (*see, e.g.*, U.S.S.N. 12/414191… which [is] incorporated herein by reference in [its] entiret[y] for all purposes.)" Thus, all of the material of the '191 application was properly incorporated into all of the applications in the priority chain for the '056 patent. *Paice*, 881 F.3d at 907.

On December 2, 2016, PacBio submitted a preliminary amendment of the '056 Patent to include material from the '191 application—which was already incorporated by reference—directly into the specification of the '056 Patent. This amendment is the sole basis for ONT's assertion that the '056 patent must be afforded a later priority date. However, this preliminary amendment, which merely includes material from the '191 application, "does not contain any new matter compared to the initial parent application." *Harari*, 602 F.3d at 1352.

Notably, the testimony of ONT's experts supports the presumption of correctness of the original priority date. Dr. Ha opines that he understands the '056 has a priority date of 2009. *See*

Ex. 15 [Ha Opening Report] ¶ 79. Dr. Akeson also understood "that the patents asserted in this case claim priority dates in 2009." Ex. 9 [Akeson Opening Report] ¶ 17. There is no evidence to support ONT's claim that the preliminary amendment to the '056 patent alters the priority date.

ONT relies on the December 1, 2016 priority date in its argument that the '056 patent is obvious in light of Akeson I and Bjornson. *See* Exs. 16 [Akeson I] and 17 [Bjornson]. ONT has asserted that Bjornson is prior art only if the '056 patent has a 2016 priority date. Because that is the incorrect priority date, ONT's invalidity ground based on Akeson I and Bjornson fails.

E. ONT Fails To Provide A Reasonable Expectation Of Success For Any Of The Obviousness Grounds For The '056 Patent

ONT argues that the '056 Patent is obvious in light of the teachings of U.S. Patent Publication 2006/0063171 ("Akeson I") in combination with references teaching a variety of translocating enzymes. However, ONT fails to provide any evidence that a POSA would have a reasonable expectation of success in making these combinations.

As discussed above, the reasonable expectation of success is a separate inquiry from a motivation to combine, and must be established as part of an obviousness claim. *See Intelligent Bio-Sys., Inc.*, 821 F.3d at 1367.

ONT fails to provide evidence that a POSA would have a reasonable expectation of success in combining Akeson I with any of the other references it relies upon. Akeson I is in every ONT prior art combination. Dr. Ha provides no evidence or analysis that a POSA would have a reasonable expectation of success. His sole mention of a reasonable expectation of success in his expert reports is a repetition of the conclusion that "[a]s shown by the chart and discussion below, a POSA would have had reason to combine the [references] to arrive at the claimed invention with a reasonable expectation of success." *See, e.g.* Ex 15 [Ha Opening Report] ¶ 188. Dr. Ha offers the same conclusory statement for every obviousness combination. *See id*. ¶¶ 238, 287, 396, 421,

444, 469, 495, 517. This bare conclusion, unsupported by any analysis, cannot provide clear and convincing evidence. *See Intendis GMBH*, 117 F. Supp. 3d at 591 (D. Del. 2015).

On cross-examination, Dr. Ha admitted that he did not know whether a POSA would have a reasonable expectation of success, but that the chance of success would be perceived as "very low":

> Q. Do you have an opinion one way or the other as to whether a person of ordinary skill in the art in 2009 would have a reasonable expectation of success in combining any of the prior art references you've identified to arrive at claim 1 of the '056 patent?
>
> A. Yeah, I don't -- I don't know. Maybe reasonable is a legal term, but... I mean, you can buy a lottery ticket. It's reasonable -- reasonable -- what did you say, reason of anticipation?
>
> Q. Expectation, yes.
>
> A. -- expectation of success because, you know, chance is very low, but reward is very large.

Ex. 22 [Ha Dep. Tr.] at 48:13–49:12. Going even further, Dr. Ha admitted that he did not have any confidence that a person of ordinary skill would have in selecting an enzyme for sequencing, and that he was unable to say whether the likelihood of success was "[m]ore than 1 percent or less than 1 percent." *Id*. at 98:21–99:15.

ONT has failed to provide any evidence that a POSA would have a reasonable expectation of success in making any of the proposed obviousness combinations. ONT cannot carry its burden, and its obviousness arguments with respect to the '056 patent must fail.

F. ONT Fails To Show That The Akeson References Anticipate The '056 Patent

The '056 Patent requires, *inter alia*, selecting a translocating enzyme and set of reaction conditions such that the "translocating enzyme ***exhibits two kinetic steps*** wherein each of the kinetic steps has a rate constant, and the ratio of the rate constants of the kinetic steps is from 10:1 to 1:10." '056 Patent at abstract (emphasis added). ONT admits that this requirement is not

disclosed by Akeson I or Akeson II (*see* Ex. 23), and provides no evidence that the Akeson references inherently include this requirement.

A prior art reference inherently anticipates only if "the prior art ***necessarily*** functions in accordance with, or includes, the claimed limitations." *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (emphasis added). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981); *see also PAR Pharm., Inc. v. TWI Pharm., Inc*., 773 F.3d 1186, 1195 (Fed. Cir. 2014).

ONT has no evidence that the Akeson references necessarily function as described in the '056 Patent. Dr. Ha argues that Akeson I and Akeson II anticipate the '056 Patent because they teach using a "molecular motor" that operates at a "rate of 75-2000 Hz …" Ex. 15 [Ha Opening Report] at p. 73 (citing Akeson I at [0011]). Notably, this disclosure says nothing about the required 10:1 ratio between kinetic steps. Thus, neither Akeson I nor Akeson II teach the claimed "translocating enzyme [that] exhibits two kinetic steps."

To try to overcome this deficiency, Dr. Ha argues that the Akeson references inherently disclose this requirement. In his reply report, Dr. Ha explained that he believed "that it is a ***near*** mathematical certainty that the enzymes disclosed in Akeson I and II exhibit two kinetic steps having the claimed ratio of rate constants." Ex. 24 [Ha Reply Report] ¶ 29. Dr. Ha's sole support for this claim is his IPR declaration. *Id.*

In his IPR declaration, Dr. Ha relies on a series of unsupported assumptions to arrive at the conclusion that Akeson I inherently anticipates the '056 Patent.[3] First, Dr. Ha assumes a reaction rate of 75Hz. Ex. 25 [IPR2018-01795 Ex. 1002, Ha Decl.] ¶ 80. Second, Dr. Ha assumes that this

[3] Dr. Ha's anticipation grounds based on Akeson I and II are substantively identical.

polymerase has the same kinetic scheme as the embodiment illustrated in Figure 32 of the '056 Patent, without any evidence. *Id*. Third, Dr. Ha assumes that Akeson I's polymerase can be described using the same six steps described in an exemplary scheme describing this figure. *Id*. Fourth, Dr. Ha assumes that all of the kinetic steps are exhibited. *Id*. ¶ 81. Lastly, Dr. Ha asserts that, assuming all previous steps were true, "this would require one of the rates of a kinetic step to be 1.2 microseconds and the fastest rate of one of the kinetic steps being 120 nanoseconds" and that such an enzyme would be "scientifically not credible." *Id*. ¶¶ 81–82. Thus, for Akeson I to inherently disclose an enzyme exhibiting two kinetic steps, ONT would need evidence that each of these assumptions was necessarily true, not just likely. *See MEHL/Biophile Int'l Corp.*, 192 F.3d at 1365; *PAR Pharm., Inc.*, 773 F.3d at 1195.

ONT fails to carry its burden. Neither ONT nor Dr. Ha provides evidence that ***any*** of the assumptions Dr. Ha makes are true in either his expert report or his IPR declaration. For example, Akeson I claims that reaction rates as low as 0 Hz are appropriate. Akeson I at [0082] ("In the present invention, the rate of movement of a polynucleotide with respect to a nanopore aperture may be between 0 and 2000 Hz…"). Yet, an enzyme exhibiting a rate of 1 Hz would not necessarily exhibit two kinetic steps with the required ratio. Additionally, Dr. Ha fails to explain why the scheme described in Figure 32 of the '056 patent applies to the DNA polymerase in Akeson I, when there are numerous DNA polymerase molecules. Notably, the '056 patent teaches that the scheme depicted in Figure 32 is just one possible kinetic scheme. *See* '056 Patent at 25:51–52 ("Various schemes can be used to represent a reaction having two slow steps that may have more or fewer identified steps."). Dr. Ha also fails to explain why all steps described in this scheme would be "exhibited" as required by the claims. The '056 patent expressly teaches that not all enzymes exhibit two kinetic steps, and describes particular mutations and reaction conditions that

will result in this behavior. *See, e.g.*, '056 Patent at 29:19–32:20.

Because ONT fails to explain why the prior art necessarily discloses the requirements of the '056 Patent as required to support its inherency argument, ONT's anticipation grounds for the '056 patent fail.

V. PACBIO'S MOTION TO STRIKE SHOULD BE GRANTED

PacBio respectfully moves to exclude portions of the opinions of ONT's technical experts, Drs. Hrdlicka and Goldman, and ONT's damages expert, Dr. Layne-Farrar. ONT bears the burden of establishing that expert testimony is admissible by a preponderance of the evidence. *Bourjaily v. U.S.*, 483 U.S. 171, 175 (1987). To be admissible, the testimony must: (i) be based on specialized knowledge, training, or experience that will assist the trier of fact; (ii) be based on sufficient facts or data; (iii) be the product of reliable principles and methods; and (iv) reliably apply the principles and methods to the facts of the case. Fed. R. Evid. 702; *see also Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589-97 (1993). "[A]ny step that renders the [expert's] analysis unreliable under the Daubert factors renders the expert's testimony inadmissible." *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 745 (3d Cir. 1994).

A. Dr. Goldman's Non-Infringement Testimony That Is Contrary To The Court's Claim Constructions Should be Excluded

Several features of Dr. Goldman's opinions are wholly unsupported by any objective evidence, and should be excluded. In Dr. Goldman's rebuttal to Dr. Dessimoz's infringement report, he states that [redacted] Ex. 26 [Goldman Rebuttal Report] ¶ 207. Notwithstanding his reference to the Court's claim construction opinion, Dr. Goldman's

"understanding" has no support in the Court's constructions or its underlying reasoning. Dr. Goldman's opinion improperly adds an order-of-steps requirement that the calibration data be produced after a value of N is determined. ONT made no such argument in its claim construction briefing, and the Court's opinion does not limit the claims of the '400 Patent in such a manner. *See generally* D.I. 153. By imposing requirements that the Court did not, Dr. Goldman's theory is inconsistent with the Court's construction, and his opinions that rely upon this theory—including his unsupported assertion that [redacted] Ex. 26 [Goldman Rebuttal Report] ¶ 207—should be excluded. *EMC Corp.*, 154 F. Supp. 3d at 109 ("Expert testimony based on an impermissible claim construction is properly excluded as irrelevant and on the basis that the evidence could confuse the jury."); *Accord Oxford Gene v. Mergen Ltd.*, 345 F. Supp. 2d 431, 436 (D. Del. 2004) ("Dr. Purdue's failure to disclose a clear construction of each disputed claim element makes his report less than helpful to the trier of fact, in contravention of Federal Rule of Evidence 702.").

B. The Court Should Exclude Dr. Hrdlicka's Testimony That Fails To Apply The Court's Claim Constructions

Dr. Hrdlicka's reports include two arguments that a fail to apply the Court's construction of terms in the '929 Patent. Both arguments should be excluded.

First, Dr. Hrdlicka opines that the Accused Products do not infringe because [redacted] Ex. 27 [Hrdlicka Rebuttal Report] ¶ 109. The Court has construed "consensus sequence," and its construction includes no such requirement for "at least three reads." Instead, the Court construed "consensus sequence" to mean "the most likely actual nucleotide sequence" and neither stated nor suggested that the construction somehow required a particular manner of determining "the most likely actual nucleotide sequence." D.I. 152 at 11. The Court's claim construction expressly

rejected ONT's construction and its implicit requirement that determining a consensus sequence requires three reads. *Id.* at 11-12. Dr. Hrdlicka's opinions that artificially insert an "at least three reads" requirement into the claims, including paragraphs 107 to 112 of his Rebuttal Report, are thus inconsistent with the Court's construction and should be excluded on that basis alone. *EMC Corp.*, 154 F. Supp. 3d at 109.

Second, Dr. Hrdlicka has proffered an opinion on enablement that, by his own admission, does not apply the Court's claim construction of the term "polynucleotide." Specifically, in his reply report regarding invalidity, Dr. Hrdlicka stated that [redacted] Ex. 28 [Hrdlicka Reply Report] ¶ 24. This understanding was the foundation of Dr. Hrdlicka's "Opinions Regarding Enablement of Processive Enzymes," set forth in paragraphs 25 through 29 of his Reply Report.

During his deposition, however, when Dr. Hrdlicka was asked if he was "using 'polynucleotide' as the court defined it," he admitted that "the answer to that has to be no." Ex. 19 [Hrdlicka Dep. Tr.] at 252:7-9. Instead, Dr. Hrdlicka was applying his own construction—one that adds a requirement that term "polynucleotide" refer only to "long" polynucleotides. *Id.* at 252:9-21. The Court's construction of "polynucleotide"—"a molecule having multiple nucleotides"—includes no requirement that the polynucleotide be "long." D.I. 152 at 6. Accordingly, Dr. Hrdlicka's enablement opinion is based on an erroneous construction and can only confuse, rather than assist, the jury. *EMC Corp.*, 154 F. Supp. 3d at 109.

C. Dr. Layne-Farrar's Testimony Regarding Comparable Licenses, The Lump Sum Payment, And Non-Infringing Alternatives Should Be Excluded

1. Dr. Layne-Farrar Fails To Perform An Analysis Of The Underlying Patents Of ONT Licenses

Dr. Layne-Farrar's opinions on the hypothetical negotiation between the parties and her analysis of the *Georgia Pacific* factors relies on 21 licenses entered into by ONT. Dr. Layne-Farrar did not, however, perform or rely on any analysis of the technical comparability of 18 of these licenses. Dr. Layne-Farrar's opinions regarding these licenses are unreliable and should be excluded.

One of the factors for establishing a reasonable royalty is "[t]he rates paid by the licensee for use of other patents comparable to the patent in suit." *Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F.Supp 1116, 1120 (S.D.N.Y. 1970). To show that a license is "sufficiently comparable," the expert must demonstrate "how similar or dissimilar the patented technology" covered by the prior licenses is to the patents-in-suit. *Lucent Technologies, Inc., et al. v. Gateway, Inc., et al.*, 580 F.3d 1301, 1331 (Fed. Cir. 2009). When relying on licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice. *See LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012). Various courts have stricken opinions that do not provide any analysis of technological comparability. *See e.g., Utah Med. Prod., Inc. v. Graphic Controls Corp.*, 350 F.3d 1376, 1385 (Fed. Cir. 2003) (affirming district court's exclusion of accused infringer's damages testimony when accused infringer "had not shown that the license agreements used in its expert's analysis were in any way comparable to the [asserted] patent."), *Zimmer Surgical, Inc. v. Stryker Corporation*, 365 F. Supp. 3d 466, 495–6 (D. Del. 2019) (excluding portions of accused infringer damages expert's testimony when the accused infringer failed to show a license agreement the expert relied on was a comparable agreement in both technologies); *Biscotti Inc. v. Microsoft*

Corp., 2017 WL 2607882, at *3–*4 (E.D. Tex. 2017) (excluding accused infringer's damages expert from relying on a certain license agreement because neither the damages expert, nor a second expert that the damages expert allegedly relied upon, showed that the license agreement was technologically comparable).

Dr. Layne-Farrar lists 21 ONT license agreements that have [redacted], including the three comparable licenses identified by PacBio. Ex. 29 [Layne-Farrar Rebuttal Report] ¶ 114. Dr. Layne-Farrar provides no analysis regarding the technological comparability of the patents licensed in any of those 21 agreements, nor does she cite to any technical analysis by any other expert. On cross-examination, Dr. Layne-Farrar conceded that she did not perform or rely on any substantive technical analysis of the patents licensed under those 21 agreements, but instead viewed them as comparable simply because "they all cover nanopore":

Q. [redacted]

[redacted]

Ex. 30 [Layne-Farrar Dep. Tr.] at 33:22–34:08. Dr. Layne-Farrar further admitted that she did not discuss the technical comparability of these licensed patents with ONT's technical experts:

> Q. And you didn't discuss any specific claims with the technical experts of Oxford nanopore from the licensed patents in the Oxford agreements?
>
> A. No. As I stated before we didn't discuss any individual patents at all for the Oxford agreements. We did for asserted patents, obviously.

Ex. 30 [Layne-Farrar Dep. Tr.] at 35:14–19.

Not only did Dr. Layne-Farrar fail to perform any analysis regarding the technical comparability of the patents licensed in any of the 21 agreements, there is no evidence in the record

establishing the comparability of the 18 agreements that were not relied upon by PacBio's expert, Dr. Prowse. Thus, Dr. Layne-Farrar's testimony regarding or relying on the terms of the 18 licenses not analyzed for comparability is unreliable and should be excluded.

2. Dr. Layne-Farrar Inappropriately [redacted] Without Performing Any Analysis

Dr. Layne-Farrar opines regarding the value of the upfront lump sum payment as part of the hypothetical negotiation again without performing any analysis to support her conclusion.

Dr. Layne-Farrar agrees with PacBio's expert, Dr. Prowse, that an [redacted] is appropriate as part of the hypothetical negotiation between the parties. Dr. Layne-Farrar opined that a reasonable [redacted] Ex. 29 [Layne-Farrar Rebuttal Report] ¶ 155. Dr. Layne-Farrar provides no analysis regarding the accuracy of this figure or why [redacted] is appropriate. Notably, Dr. Layne-Farrar provides no analysis of the other licenses to explain how [redacted] is reasonable when the underlying technologies licensed, and license terms are different in each agreement.

Under cross-examination, Dr. Layne-Farrar conceded that her analysis regarding the [redacted] was not grounded in any analysis, and could be easily changed. *See* Ex. 30 [Layne-Farrar Dep. Tr.] at 315:3–9 [redacted] Dr. Layne-Farrar further testified that she could support raising the [redacted] ONT licenses, but provided no explanation for why she deviated from this value. *See id*. at 323:15–24.

Because Dr. Layne-Farrar's testimony on the value of [redacted] is wholly conclusory and without support, it should be excluded. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 711 F.3d 1348, 1374 (Fed. Cir. 2013) ("Such unreliable testimony frustrates a primary goal of expert testimony in any case, which is meant to place experience from professional specialization at the jury's disposal, not muddle the jury's fact-finding with unreliability and speculation."); *see also Acceleration Bay LLC v. Activision Blizzard Inc.*, 2019 WL 4194060, at *8 (D. Del. 2019) (striking portion of accused infringer's damages expert opinion because her only support for these opinions was her "assumption"); *Network-1 Technologies, Inc. v. Alcatel-Lucent USA, Inc.*, 2017 WL 4173467, at *5-*6 (E.D. Tex. 2017) (striking portion of accused infringer's damages expert's testimony opining where the expert admitted his opinion on this point was "unsupported speculation").

3. Dr. Layne-Farrar's Testimony Regarding Non-Infringing Alternatives Is Contrary To Law And Should Be Excluded

Dr. Layne-Farrar's opinions are based on a purported non-infringing alternative that is not commercially available, and thus cannot be a non-infringing alternative. Specifically, Dr. Layne-Farrar identifies [redacted] as a non-infringing alternative to the '056 Patent. Ex. 29 [Layne-Farrar Rebuttal Report] ¶ 92. Dr. Layne-Farrar admits, however, that this "system" [redacted] not commercially available. *Id.*; *see also* Ex. 30 [Layne-Farrar Dep. Tr.] at 109:20–111:4.

A purported non-infringing alternative must be available to consumers, i.e., on the market or capable of being brought to the market during the relevant period of infringement. *Grain Processing Corp. v. American Maize-Prods. Co.*, 185 F.3d 1341, 1354–55 (Fed. Cir. 1999); *see also Micro Chem., Inc. v. Lextron, Inc.*, 318 F.3d 1119, 1123 (Fed. Cir. 2003) (finding an alleged

alternative not available at the time of infringement where the new product required 984 hours to design and another 330 to test).

The proposed solution of developing [redacted] cannot be a non-infringing alternative because this alternative is not on the market and was not capable of being brought to the market sooner. Dr. Layne-Farrar admits in her expert report that ONT estimated that this solution [redacted] based on her conversations with Dr. Stuart Reid, ONT's VP of Development. Ex. 29 [Layne-Farrar Rebuttal Report] ¶ 92. Moreover, under cross-examination, Dr. Layne-Farrar admitted that [redacted]. Ex. 30 [Layne-Farrar Dep. Tr.] at 110:24–111:4. This purported solution has [redacted]. Moreover, there is no evidence in the record that ONT would have been able to bring this purported solution to market any faster. Thus, it cannot be considered a non-infringing alternative. *See Micro Chem., Inc.*, 318 F.3d at 1123.

Dr. Layne-Farrar's opinions based on this purported non-infringing alternative is contrary to law and must be excluded.

D. Dr. Layne-Farrar's Second Supplemental Report Is Irrelevant And Should Be Struck

Dr. Layne-Farrar served a second supplemental report on November 19, 2019. The purported reason for the second supplemental report was to discuss the November 7, 2019 "Response to Notice of Possible Remedies" filed in the CMA investigation of the combination of Illumina and PacBio. Ex. 31 [Layne-Farrar Second Supp. Report] ¶ 5. Specifically, Dr. Layne-Farrar's second supplemental report purports to use statements by PacBio from the Response in the CMA investigation to rebut PacBio's arguments. *Id.* ¶¶ 9–11.

Dr. Layne-Farrar omits, however, that the statements in the "Response to Notice of Possible Remedies" that she relies on are Illumina's statements and not PacBio's. Ex. 32 [Response to Notice of Possible Remedies] at 5 ("Illumina proposes the following two alternative undertakings to remedy the SLC provisionally identified by the CMA… ."). Illumina's statements in 2019 offered to overcome an antitrust investigation are irrelevant to PacBio's negotiation position at the time of the hypothetical negotiation in 2017. For example, Illumina's offer to license PacBio's patents to resolve antitrust concerns is irrelevant to whether PacBio would willingly license its patents to a competitor in 2017. *See* Ex. 31 [Layne-Farrar Second Supp. Report] ¶ 9.

Moreover, Illumina's statement is likely to confuse the issues and mislead the jury, and so should be excluded under FRE 403. Illumina's offer made to resolve an antitrust investigation is likely to be confused with PacBio's willingness to license a competitor. Moreover, Illumina's offer could confuse the jury as to the value of PacBio's patent portfolio. Dr. Layne-Farrar's second supplemental report will not assist the finder of fact, will confuse or mislead the jury, and should be struck.

E. Dr. Akeson's Testimony Based On Documents That Are Not Prior-Art, That Were Not Timely Disclosed, Contrary To Law, And Uncorroborated, Should Be Excluded

Dr. Akeson provided two expert reports that mix prior art and non-prior art references in a confusing fashion, rely on materials improperly withheld by ONT during fact discovery, provide opinions without any understanding of the appropriate legal standards, and provide a rambling factual narrative in place of opinion. Dr. Akeson's improper testimony should be excluded.

1. Dr. Akeson's Testimony Based On Non-Prior Art References Will Confuse The Jury And Should Be Excluded

Dr. Akeson states that the purpose of his opening expert report is to "provide an overview of technologies relevant to the asserted claims of the patents in suit." Ex. 9 [Akeson Opening Report] ¶ 17. Dr. Akeson states that generally his "opinions below refer to the state of the art in this field up to and including 2009." *Id.* An overview of the relevant technologies should be limited to the period leading up to the priority dates of the asserted patents (as expressly acknowledged by Dr. Akeson). *See* Ex. 9 [Akeson Opening Report] ¶ 17. He nonetheless mixes into his narrative approximately two dozen documents that are not prior art. *See e.g.,* Ex. 9 [Akeson Opening Report] at fn. 4, 9, 10, 12, 14, 18, 26-31, 33, 35-39, 63. Dr. Akeson's report mixes citations to publications from 2010 to 2016 into discussions of the prior art in a way that would confuse and mislead the jury.

For example, in paragraph 26 of Dr. Akeson's expert report, he states that it was recognized "that sequencing both strands improved base call accuracy," and then discusses a 1996 publication regarding Sanger sequencing. Ex. 9 [Akeson Opening Report] ¶ 26. Dr. Akeson then states that "[t]his fact is so commonly held that it is highlighted by online tutorials directed at laboratory technicians published by ThermoFisher," but he cites a blog post published in 2015, 6 years after the priority date. *Id.* As another example, in the section titled "History of Nanopore Sequencing," Dr. Akeson mixes discussions of developments post-dating the asserted patents (*see id.* ¶ 37, discussing developments from 2010-2012) with discussions of the state of the art prior to the priority date of the asserted patents (*see id.* ¶ 38, discussing development of nanopore chemistries "[i]n the 2008-2009 period"). Dr. Akeson provides no explanation for why he discusses development post-dating the Asserted Patents, and, more egregiously, he does not carefully distinguish what was and was not known in the art before the 2009 priority date.

Dr. Akeson's careless mixture of non-prior art references with prior art references when purporting to provide the jury with opinions on the state of the art for the purpose of assessing the validity of the asserted patents will confuse and mislead the jury. Dr. Akeson's opinions based on documents published, or information discovered after the priority date of the asserted patents should be struck.

2. Dr. Akeson's Testimony Based On Documents Not Produced During Discovery Should Be Excluded

Despite the close connection between Dr. Akeson and ONT, and ONT's intent to use Dr. Akeson as a conduit to provide a narrative, ONT hid Dr. Akeson during discovery and withheld many of the documents he ultimately relied on.

Dr. Akeson is a scientist who has worked with ONT for more than a decade, receiving more than [redacted] from his collaboration with ONT for that period. Ex. 10 [Akeson Dep. Tr.] at 29:2-13. ONT had been working with him in connection with this litigation for months before the close of discovery. Ex. 10 [Akeson Dep. Tr.] at 122:17–123:2. Nonetheless, ONT did not identify Dr. Akeson in its disclosures during fact discovery as an individual with relevant knowledge. Moreover, ONT did not produce more than a dozen documents that Dr. Akeson relied on in his opening report until after the close of fact discovery and after PacBio's counsel was forced to demand production of the documents. Ex. 33 [Aug. 15, 2019 E-mail from Liz Flannery to Robert Magee]. These untimely documents, and Dr. Akeson's testimony based on those documents, should be excluded under FRCP 37(c)(1).

Federal Rule of Civil Procedure 26 requires a party who has responded to a request for production to supplement its disclosure or response in a timely manner. Under FRCP 37(c)(1), if a party fails to provide information or identify a witness as required by Rule 26(a) or (e), the party is not allowed to use that information or witness at trial, unless the failure was substantially

justified or is harmless. The Federal Circuit has upheld exclusion of untimely validity evidence, holding that "attempts to proffer expert testimony without compliance with Rule 26 violate both the rules and principles of discovery, and the obligations lawyers have to the court." *Innogenetics N.V. v. Abbott Labs.*, 512 F.3d 1363, 1375–76, 1376 n.4 (Fed. Cir. 2008) (upholding exclusion of alleged anticipatory patent reference that was disclosed on the last day of discovery despite technical compliance with 35 U.S.C. § 282 since it "stripped [plaintiff] of any meaningful opportunity to prepare an adequate cross-examination of the reference"). "Exclusion and forfeiture are appropriate consequences to avoid repeated occurrences of such manipulation of the litigation process." *Id.*

In February 2018, PacBio served its first set of RFPs on ONT asking for "all documents relating to any opinion (whether written or oral) regarding the infringement, validity, patentability, enforceability, or scope of any claim of the Patents-in-Suit . . . including . . . documents generated or reviewed in the drafting or preparation of any opinion." Ex. 34 [PacBio's First Set of RFPs, Request for Production No. 4] at 9. Despite having months, if not more than a year, to produce the documents Dr. Akeson relies on, ONT failed to do so. Given the close connection between Dr. Akeson and ONT, and the months of work performed by Dr. Akeson, there is no excuse for ONT's failure to identify Dr. Akeson as a potential witness during discovery or to produce the documents responsive to PacBio's RFP during discovery.

In determining whether to exclude an untimely expert disclosure pursuant to FRCP 37, Courts in the Third Circuit consider: (1) the prejudice or surprise in fact of the party against whom the excluded witnesses would have testified, (2) the ability of that party to cure the prejudice, (3) the extent to which waiver of the rule against calling unlisted witnesses would disrupt the orderly and efficient trial of the case or of other cases in the court, (4) bad faith or willfulness in failing to

comply with the court's order, and (5) the importance of testimony sought to be excluded. *Meyers v. Pennypack Woods Home Ownership Assn.*, 559 F.2d 894, 904–05 (3d Cir. 1977). Here, all of these factors favor exclusion.

ONT deliberately waited until filing of opening expert reports, well after the close of fact discovery and months after retaining Dr. Akeson as a consultant, to disclose Dr. Akeson and produce the documents he relied on. In addition to the documents withheld by ONT described above, Dr. Akeson included hundreds of pages of his own presentations as exhibits to his opening report. Those presentations were also withheld during fact discovery. Moreover, ONT has offered no excuse for its failure to comply with its discovery obligations, which suggests that the failure was willful.

ONT's delay prejudiced PacBio by precluding it from requesting or obtaining further fact discovery in response, even though Dr. Akeson's expert report contains numerous key factual assertions, as discussed *supra*. PacBio would have diligently investigated Dr. Akeson's 102(g) claims by deposing Dr. Winters-Hilt and other percipient witnesses from their laboratories. PacBio would have subpoenaed documents and records from both laboratories so that the Court and the jury is not just presented with Dr. Akeson's cherry-picked records. Once the factual picture was developed, PacBio would have provided this evidence to its experts so that they could provide opinions based on the complete record. There is no time to complete this effort before the March trial date, because of ONT's efforts to hide the ball. The prejudice cannot be cured and the appropriate remedy is exclusion of Dr. Akeson's belatedly disclosed documents and corresponding opinions.

Finally, Dr. Akeson's testimony is not essential to any of ONT's claims. Indeed, ONT already relies on other experts—Drs. Goldman, Ha, and Hrdlicka to opine on validity. Dr. Akeson's opinions based on these untimely documents should be excluded.

3. Dr. Akeson's Opinions On Obviousness And Enablement Should Be Excluded

Despite the purportedly limited scope of Dr. Akeson's reports, he nonetheless opines on obviousness and enablement. Ex. 9 [Akeson Opening Report] ¶ 48; Ex. 35 [Akeson Reply Report] ¶¶ 14–18. Specifically, Dr. Akeson opines that the use of "k-mers" in nanopore sequencing "would have been obvious to scientists in this field prior to 2009." Ex. 9 [Akeson Opening Report] ¶ 48. He further opines that "prior to 2010 . . . no one skilled in the art was enabled to sequence DNA using a processive enzyme coupled to a nanopore." Ex. 35 [Akeson Reply Report] ¶ 18.

Dr. Akeson, however, lacked any legal basis for forming these opinions. Under cross-examination, Dr. Akeson conceded that he was not "competent to say whether something is obvious or not obvious from a patent perspective." Ex. 10 [Akeson Dep. Tr.] at 117:24–118:4. Moreover, he conceded that he does not know "the rules for what constitutes enablement or not." *Id.* at 339:24–340:2. Dr. Akeson's ignorance of the appropriate legal standards is apparent by his failure to apply the appropriate legal tests in his expert reports. Dr. Akeson's obviousness and enablement opinions are unreliable and should be excluded.

4. Dr. Akeson's Narrative History Of His Work Is Uncorroborated Improper Expert Testimony And Should Be Excluded

Finally, the majority of Dr. Akeson's expert report is not expert opinion, but rather a lawyer-written script detailing his personal history in the industry and working with ONT. *See generally* Ex. 9 [Akeson Opening Report] ¶¶ 7–10, 33–70. In this narrative, Dr. Akeson provides a history of his work in the nanopore field, his work with ONT, and his purported prior invention

of the asserted claims. Dr. Goldman relies on this testimony in his 102(g) invalidity analysis. Ex. 11 [Goldman Opening Report] ¶¶ 764-96, 1441–73.

As noted above, ONT did not disclose Dr. Akeson as a fact witness. He is not providing percipient witness testimony. ONT cannot attempt to use Dr. Akeson's testimony as a "vehicle[] for factual narrative" and a "conduit[] for others' hearsay." *See Island Intellectual Prop. LLC v. Deutsche Bank AG*, 2012 WL 526722, at *2 (S.D.N.Y. 2012). Dr. Akeson's rambling factual narrative does not assist the jury in understanding the evidence, but merely summarizes the evidence and so should be struck. ONT has traditional experts to cover all the subjects.

Moreover, Dr. Akeson's testimony regarding his alleged prior invention of the asserted claims—in support of Dr. Goldman's anticipation argument under 102(g)—must be corroborated by some other evidence. *See Woodland Tr. v. Flowertree Nursery, Inc*., 148 F.3d 1368, 1373 (Fed. Cir. 1998). Dr. Akeson fails to identify any corroboration, and so his testimony regarding his prior invention should be struck.

VI. CONCLUSION

For the reasons discussed above, PacBio respectfully requests that its Motion for Partial Summary Judgment and to Strike and Preclude Testimony be granted.

Dated: November 22, 2019

Respectfully submitted,

FARNAN LLP

/s/ Michael J. Farnan

Brian E. Farnan (Bar No. 4089)
Michael J. Farnan (Bar No. 5165)
919 N. Market St., 12th Floor
Wilmington, DE 19801
(302) 777-0300
(302) 777-0301 (Fax)
bfarnan@farnanlaw.com
mfarnan@farnanlaw.com

Edward R. Reines (admitted *pro hac vice*)
Derek C. Walter (admitted *pro hac vice*)
Robert S. Magee (admitted *pro hac vice*)
WEIL, GOTSHAL & MANGES LLP
201 Redwood Shores Parkway
Redwood Shores, CA 94065
(650) 802-3000

Attorneys for Plaintiff